

Name of Mine : Durgapur Opencast Project
 Quantum of Forest Land Applied for : 80.77 Ha
 Division : Chandrapur Forest Division, Chandrapur

**Table B : Estimation of cost of forest diversion
 //Opencast Mining Option//**

| Sr. No. | Parameters | Remarks |
|--|--|---|
| 1. | Ecosystem services losses due to proposed forest diversion. | Net Present Value for 1.00 ha. of forest land = 6.26 Lakhs. Net Present Value for 80.77 ha. of forest land = $80.77 \times 6.26 = 505.620$ Lakhs |
| 2. | Loss of animal husbandry productivity, including loss of fodder. | Rs. 75.843 Lakhs 15% of NPV is anticipated as loss of animal husbandry, productivity, including loss of fodder. |
| 3. | Cost of human resettlement. | NIL. |
| 4. | Loss of public facilities and administrative infrastructure (Roads, building, schools, dispensaries, electric lines, railways, etc.) on forest land, which would require forest land if these facilities were diverted due to the project. | Rs. 75.843 Lakhs 15% of NPV is anticipated as loss of public facilities and administrative infrastructure will be kept in the Mine Development Plan |
| 5. | Possession value of forest land diverted. | 1. 30% of Net Present Value for possession value of forest land 151.682 Lakhs 2. As per market rate value of village Sinhala per ha. Rs. 10.00 Lakhs x 80.77 Ha = 1995.83 Lakhs 30% of market rate 598.75 Lakhs Maximum possession value Rs. 598.75 Lakhs as per market value. |
| 6. | Cost of suffering to oustees. | NIL |
| 7. | Habitat Fragmentation Cost. | 50% of Net Present Value for habitat fragmentation cost Rs. 252.81 Lakhs. |
| 8. | Compensatory afforestation and soil & moisture conservation cost. | Rs. 88,00,812.00 paid during March 2006 against CA for 162 Ha land as part of Compliance. |
| Total Estimated Cost of Forest Diversion :- | | Rs. 1508.866 Lakhs. |


Table C – Estimating Benefits of Forest Diversion in CBA


| S.No. | Parameters | Evaluation of Benefits | Qualified in Monitory terms for 1 MT / Per Annum | Qualification of Benefit in monitory terms connected to the production of 8.00 MT |
|--------------|--|--|---|---|
| 1 | Increasing of productivity attributed to specific project | Rs. -309.27 per Te (including Processing Charges) | Rs. 12000.00 Lakhs | Rs.-24741.60 lakhs (Fuel Supply Agreement with CSTPS-MAHAGENCO is In place. Hence, the coal produced in this project will be sold there as per FSA) |
| 2 | Benefit of Economy due to the specific project | 1) Royalty @ 14% of the basic rate (@Rs.1180) Rs. 211.30/te 2) MMDR – 30% of Royalty – Rs. 63.39 3) NMT – 2% of Royalty – Rs.4.22 4) Evacuation Fee – 50.00 Total (A) Rs. 328.91 5) CGST – 2.5% -37.73 6) SGST – 2.5% - 37.73 7) State Compensation Cess - Rs.400.00 Total (B) Rs. 475.46.00 B) Other benefit not quantified in monitory terms i) Growth ancillary industries ii) Development of surrounding area iii) Increased per Capital iv) Compensatory afforestation | Rs.2113.00 Lakhs Rs.633.90 Lakhs Rs.42.20 Lakhs Rs.500.00 Lakhs Rs. 3289.10 Lakhs Rs. 443.80 Lakhs Rs. 443.80 Lakhs Rs.4000.00 Lakhs Rs. 4590.00 Lakhs Not expressed in monetary terms Grand Total (A+B) | Rs.16904.00Lakhs Rs. 5071.2 Lakhs Rs. 337.6 Lakhs Rs.4000.00 Lakhs Rs.26312.8 Lakhs Rs. 3018.40 Lakhs Rs. 3018.40 Lakhs Rs.32000.00 Lakhs Rs.38036.80 Lakhs Rs.64349.60 Lakhs |
| 3 | No. of population benefited due to specific project | Population indirectly benefited | Not quantified in Monitory Terms | Not quantified in Monitory Terms |
| 4 | Economic benefits due to direct and indirect employment due to the project | 1122 (2013) 1029 (2018) persons (Remarks: Persons-1029, OMS – 1.85 & EMS – 4114.16) | | Nil This is an ongoing project and said forest land required renewal of FC only. |
| 5 | Economic benefits due to Compensatory Afforestation | Not applicable | Not applicable | Not applicable. RS. 88,00,812.00 paid during March 2006 against CA for 162 Ha land as part of Compliance. |
| TOTAL | | | | Rs. 13295.20 Lakhs |

CALCULATION OF BENEFIT / COST RATIO

| | | |
|---|---|----------------|
| Total Benefits (As per Table C calculation) | = | 13295.20 Lakhs |
| Total Cst (As per Table B Calculation) | = | 1508.866 Lakhs |
| Hence, Benefit / Cost ratio | = | 8.811 |

Thus, the project gives **POSITIVE** Benefit / Cost ratio. The monetary returns of the project are positive over the Environmental Costs.


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17/9/18
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CHANDRAPUR, M.S. 442403

DATE : 17-9-2018
PLACE : CHANDRAPUR

(INCLUDING MINING PLAN)

| Sl. No. | Particulars | Unit | Partial Hiring Option | | | | |
|----------------------|--|--------------------------------|---|----------------------|-------------------|---|-------------------------------------|
| A. GENERAL | | | | | | | |
| 1 | Name of Project | | Durgapur Extension (Deep) OC | | | | |
| 2 | Name of Area / Company | | Chandrapur Area, WCI | | | | |
| 3 | Nearest Railway Station from project | Name km | Chandrapur 10 | | | | |
| 4 | Nearest National / State Highway / Approach road | Name km | Chandrapur-Mul road 7 km | | | | |
| B. GEOLOGICAL | | | | | | | |
| 1 | Name of geological blocks considered | Name | Durgapur Block & Motaghat Block | | | | |
| 2 | Area of the geological block | sq. km | 6.50 | | | | |
| 3 | Borehole Density within blocks | BHs / sq.km | 14 | | | | |
| 4 | Description of all coal seams within block | | | | | | |
| Name of seam | Thickness (m) | | Geological reserves (Mt) | | | | |
| | Min. | Max. | | | | | |
| Composite Seam | 14.26 (MWPD-15) | 19.99 (D-45) | 97.46 Durgapur Block - 46.91 Motaghat Block - 50.55 | | | | |
| C. TECHNICAL | | | | | | | |
| 1 | Area of the proposed mine block (excluding existing mine area) | sq. km | 2.65 | | | | |
| 2 | Borehole density within mine area | BHs/sq. km | 14 | | | | |
| 3 | Mine parameters | | | | | | |
| | Extent along strike (at floor) | km | 4.23 | | | | |
| | Extent along dip (at floor) | km | 0.58 | | | | |
| 4 | Description of coal seams proposed to be worked along with the parting details | | | | | | |
| Name of seam | Mining Area (sq. km) | Thickness range considered (m) | Av. Thick. / Parting Thickness (m) | Av. Grade (UHV/ GCV) | Av. gradient | Mineable Reserves (Mt) (as on 01.04.16) | Volume of OB (Mm³) (as on 01.04.16) |
| OB | 2.65 | 78-185 | | | | | 311.00 |
| Composite Seam | 2.11 | 15.50-16.35 | | G-10 (4581) | 1 in 8 to 1 in 10 | 47.27 | |
| | | | | | Total | 47.27 | 311.00 |
| 5 | Av. Stripping Ratio | | | | | m³/t | 6.58 |
| 6 | Method of Mining | | | | | Incline Slicing (Shovel Dumper combination) | |

| Sl. No | Particulars | | | | Option-I (3.00 Mty) | |
|------------------------|---|--|--|----------------------------------|------------------------|-------|
| 7 | Target Output | | | | Mt | 3.00 |
| | Nominal production capacity (at 100%) | | | | Mt | 2.55 |
| 8 | Year of achieving Target Production | | | | Year | IV |
| 9 | Year of start of Internal Dumping | | | | Year | I |
| 10 | Production Phasing | | | | Mt | |
| Year / Coal Seam | Coal / OB | Yr. 1 | Yr. 2 | Yr. 3 | Yr. 4 | Yr. 5 |
| OPTION-I (3.00 Mty) | Coal (Mt) | 1.60 | 2.00 | 2.50 | 3.00 | 3.00 |
| | OB (Mm ³) | 14.70 | 15.50 | 19.25 | 20.00 | 20.50 |
| 11 | Total Mine Life (at Nom. production capacity) | | | | Years | 0 |
| | Pre-construction period | | | | Years | 3 |
| | Production build-up period | | | | Years | 13 |
| | Production period | | | | Years | 1 |
| | Tapering / mine closure period | | | | Years | 17 |
| | Total period | | | | Years | |
| | | Nos. & Capacity | Approved PR (Approved May, 2007) | Project Report (August, 2016) | | |
| | | | | Option-I (3.00 Mty) | | |
| 12 | Major HEMM Deployed for Coal | | | | | |
| | Shovels / (Diesel Hyd. B/H) | 2.8m ³ 4.0-5.0m ³ | 2 - | - | | |
| | Dumpers | 50T 60T | 10 - | 3 (Repl) | | |
| | Drills | 160mm | 2 | 11 (Repl) | | |
| | Dozers | 320 HP 410HP | 2 - | 3 (Repl) | | |
| 13 | Major HEMM Deployed for OB | | | | | |
| | Electric Rope Shovels | 5m ³ | 5 | - | | |
| | Diesel Hydraulic Shovels | 5.0-6.0 m ³ | - | 3 (Repl) | | |
| | Dumpers | 50T 60T | 41 - | - | | |
| | Drills | 250mm 160mm | 5 - | 16 (Repl) | | |
| | Dozers | 320HP 410HP | 5 - | 3 (Repl) | | |
| 14 | Total Manpower | | | | | |
| | Existing | Nos. | 1327 | 972 | | |
| | Required | Nos. | 869 | 707 | | |
| | Absorbed | Nos. | 458 | 265 | | |

| | | | |
|--|--------|---|------------------------|
| Overall Output per manshift (OMS) | Tonnes | May, 2007) | Option-I (3.00 Mty) |
| Weighted average grade of coal (non-coking/coking) | | 8.718 | 16.073 |
| Presence of Major Surface Constraints (nallas, road, power line, etc.) | (type) | Non-Coking, GCV- 4581 kcal/kg (G-10) Diversion of 220kV power line, diversion of seasonal nalla, diversion of 11 kV power line | |
| Coal Transport within the mine | | By Dumpers | |
| Surface Coal Transport to CHP / Siding | | By Road | |
| Any Railway Siding | | Coal is transported through Aerial Ropeway of MAHAGENCO | |
| Name of any Specific Customer/Industry | | MAHAGENCO/Power Industry | |

D. ENVIRONMENTAL & OTHERS

| | | | | |
|---|---|------------|---------|----------|
| 1 | Civil Construction | | | |
| | Residential houses required | Nos. | Nil | Nil |
| | Existing houses | Nos. | 612 | 533 |
| 2 | Water Demand | | | |
| | Colony | kl | Nil | 1400* |
| | Industrial | kl | Nil | 790 |
| | * Water supply for entire Durgapur township from Erai River has been proposed in this PR | | | |
| 3 | Existing Land | Ha | 886.04 | 1186.54 |
| | Additional Land to be acquired within project area | | | |
| | Government land | Ha | 27.22 | 29.29 |
| | Tenancy land | Ha | 259.76 | 260.09 |
| | Forest land | Ha | 124.70 | 121.58 |
| | Total Land | Ha | 411.68 | 410.96 |
| 4 | Additional Land to be required outside project area (Land for rehabilitation of Sinhala, Navegaon, Masala Tukum & Masala rith villages) | Ha | Nil | 25.00 |
| 5 | Total land (existing+additional) | | 1297.72 | 1622.50 |
| 6 | Habitation & Rehabilitation of Sinhala, Navegaon, Masala Tukum & Masala rith villages | | | |
| | No. of land oustees | | 273 | 273 |
| | No. of PAFs to be rehabilitated | | 450 | 1275 |
| 7 | Additional Capital for land Incl. Rehabilitation cost (As per Appendix-A.1) | Rs. crores | 22.6261 | 231.6042 |

| Sl | Particulars | Unit | Approved PR | Project Report |
|---|---|--------------------------------------|---|----------------------------|
| | | | May, 2007) | Option-I (3.00 Mty) |
| 8 | Additional Capital for Environment Pollution control Measures | Rs. crores | 3.8699 | 1.5509 |
| 9 | Make of Water 100 hours | lps | - | 2829 |
| 10 | Total installed pumping capacity | m ³ /day | - | 218880 |
| 11 | Drainage of the Area (Name of river/nala) | | Drainage by Motaghat and Upasa seasonal nala and Erai river | |
| 12 | Any proposed diversion of power line | | Dioversion of 220 kV and 11 kV power line | |
| E. FINANCIAL OPTIONS (FOR POWER SECTOR) | | | | |
| -1 | Total Capital Investment | | | |
| | Additional | Rs. crores | 42.9818 | 328.0078 |
| | WDV on existing capital | Rs. Crores | 18.4586 | 50.8633 |
| | Total capital | Rs. crores | 61.4404 | 378.8711 |
| 2 | Specific Investment (Additional Capital) | Rs. / tonne Rs./m ³ | 214.90 30.42 | 1093.36 151.77 |
| 3 | Additional Capital Investment on P&M | Rs. crores | 7.2923 | 41.7308 |
| 4 | Specific Investment on P&M (Additional) | Rs. / tonne | 36.46 | 139.10 |
| 5 | Capital requirement upto target year | Rs. crores | 42.9818 | 323.0060 |
| 6 | Year of opening of Revenue account (from zero date) | Year | Mine is already in revenue | Mine is already in revenue |
| 7 | Earnings per manshift (EMS) | Rs. | 865.65 | 2535.65 |
| 8 | Estimated Cost of Production | | | |
| | At 100% production level | Rs. / tonne | 809.54 | 1380.52 |
| | At 85% production level | tonne | 875.66 | 1509.27 |
| 9 | Escalated price as per Cost Plus Agreement | Rs. / tonne | 900.74 | - |
| 10 | Estimated average notified selling price (95% sales realization + Processing Charge) | Rs. / tonne | - | 1200.00 |
| 11 | Estimated Profit at Cost Plus price | | | |
| | At 100% production level | Rs. / tonne | (+) 91.20 | - |
| | At 85% production level | tonne | (+) 25.08 | - |
| 12 | Estimated Profit at Notified price | | | |
| | At 100% production level | Rs. / tonne | - | (-) 180.52 |
| | At 85% production level | tonne | - | (-) 309.27 |

| | Particulars | Unit | Approved PIR | Project Report |
|----|---|-------------------|--------------|---------------------|
| | | | May, 2007) | Option-I (3.00 Mty) |
| 11 | Financial Internal rate of return (FIRR) at Notified Price | | | |
| | At 100% production level | % | 5.26 | Negative |
| | At 85% production level | | Negative | Negative |
| 14 | Financial Internal rate of return (FIRR) at escalated cost plus price | | | |
| | At 100% production level | % | 23.57 | - |
| | At 85% production level | | 12.53 | - |
| 15 | Desired av. Selling Price to yield 12% FIRR | | | |
| | At 100% production level | Rs. / tonne | 827.21 | 1418.20 |
| | At 85% production level | | 896.47 | 1550.05 |
| 16 | Cost of Outsourcing (average) | | | |
| | OB | Rs/m ³ | 49.16 | 74.24 |
| | Coal | Rs/tonne | - | - |
| 17 | Mine Closure Cost (for corpus fund) Rs./t | | - | 30.48 |
| 18 | Expected Completion Capital (including WDV) | Rs. crores | 46.4205 | 438.9590 |

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